Engineered Media: Layered Systems

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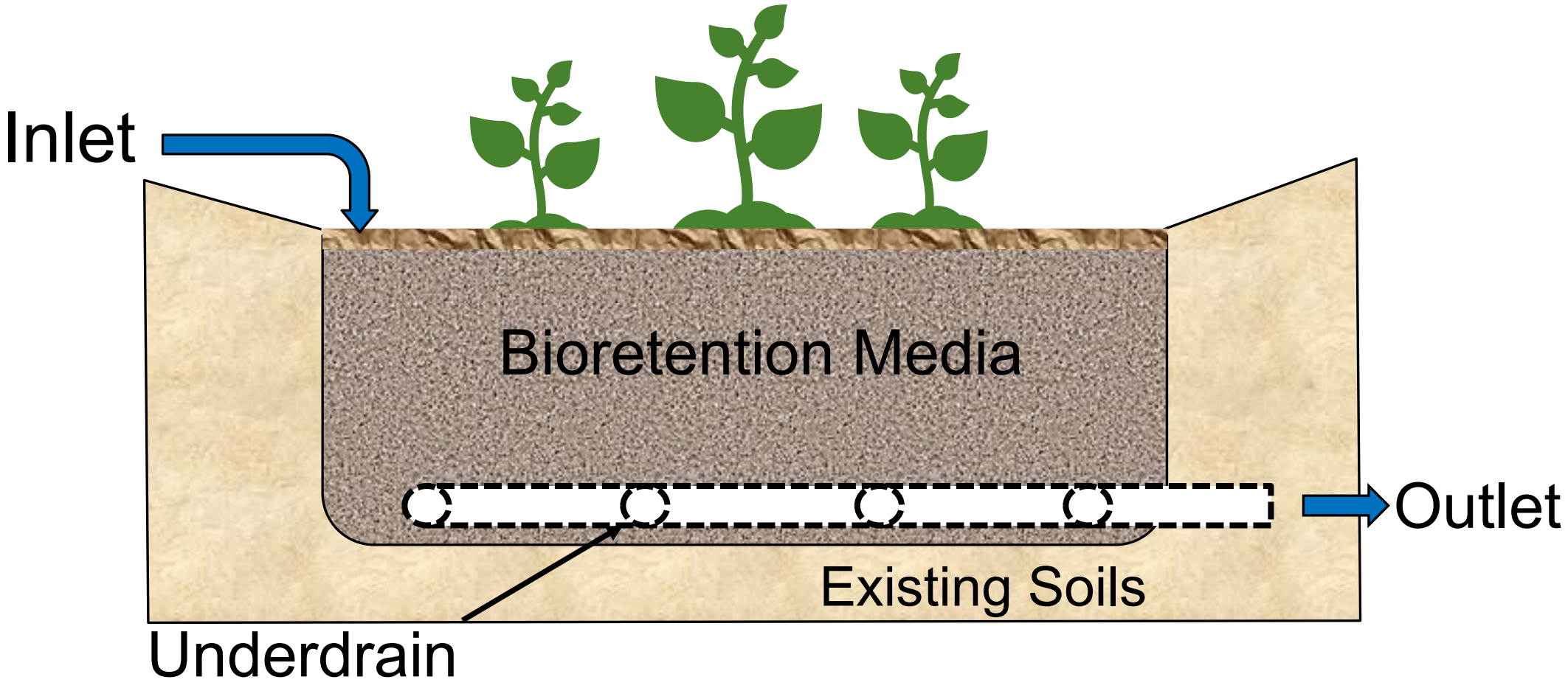
Dakota County Soil and Water Conservation District

Bioretention System with Underdrain



IESF System

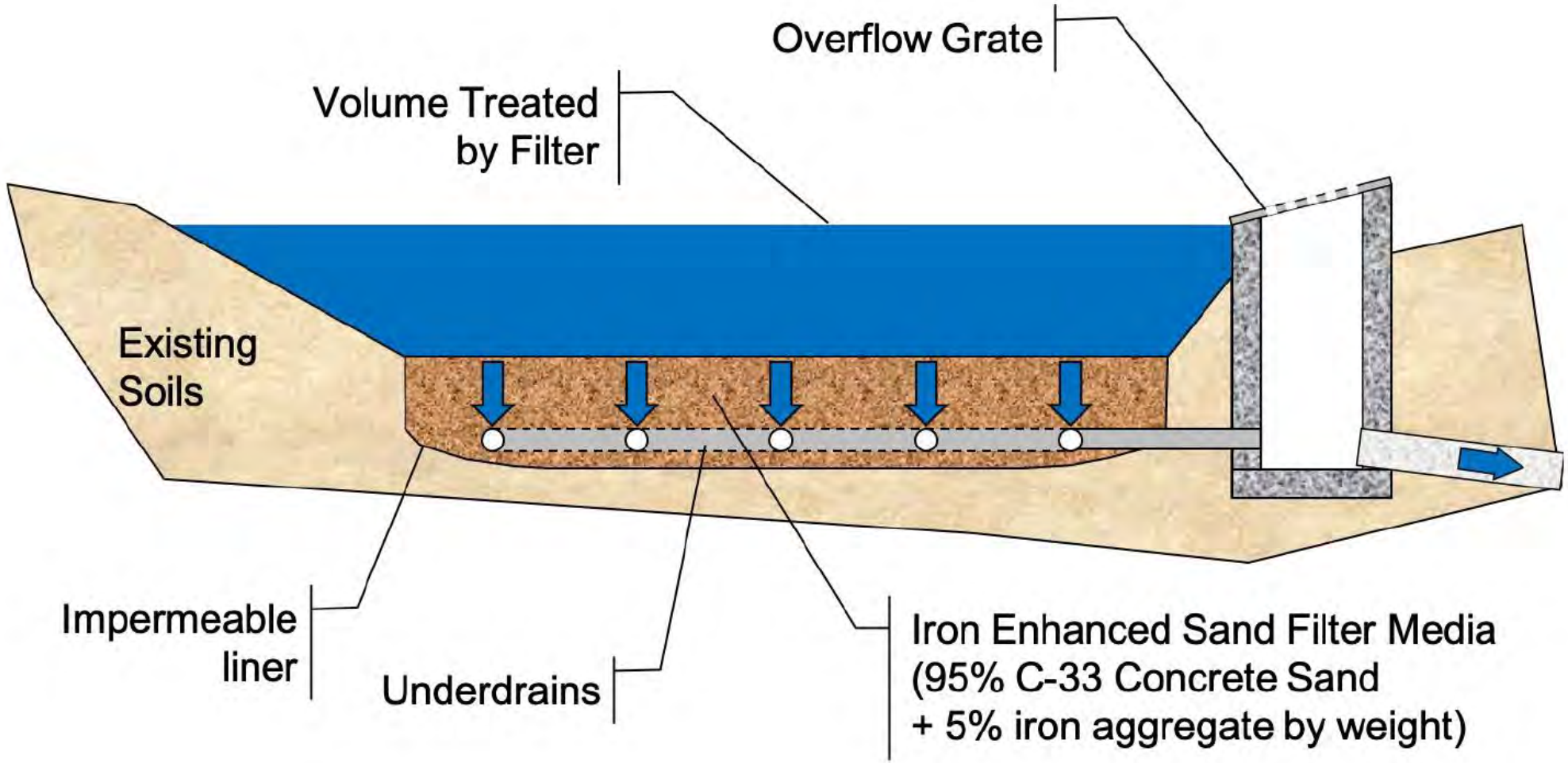


Image: Andy Erickson, SAFL

Layered System Combining Bioretention and IESF Horizontal Layers

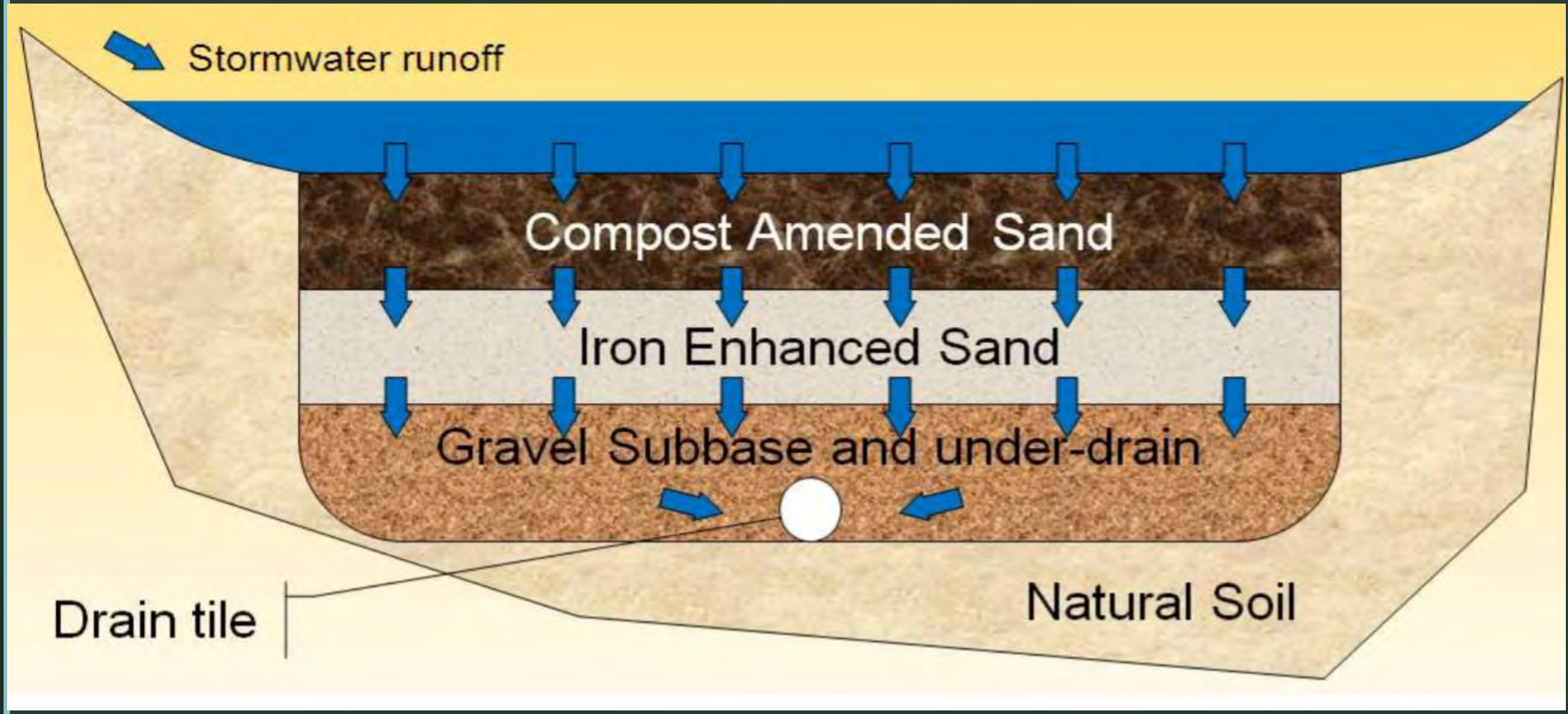


Image: Andy Erickson

Layered System Combining Bioretention and IESF Vertical Layers

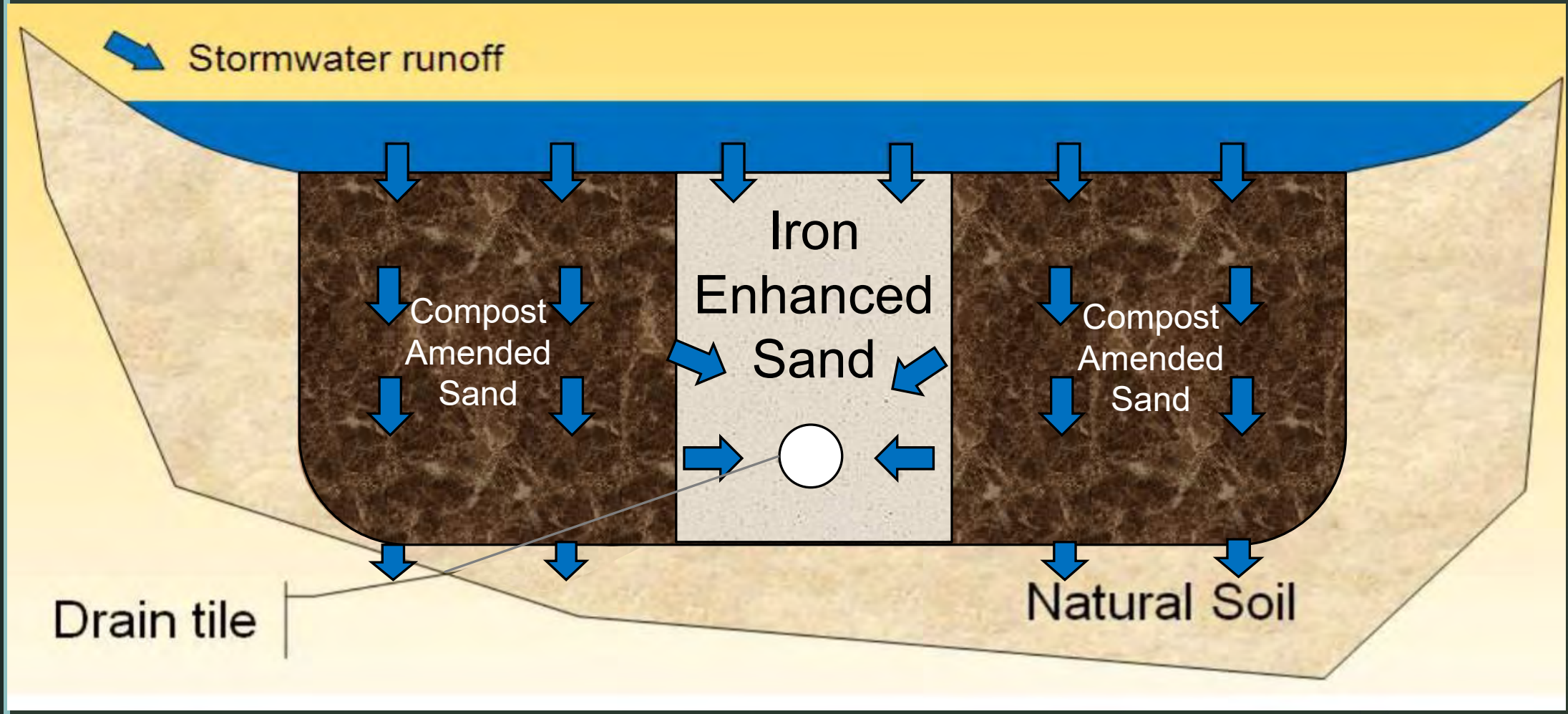
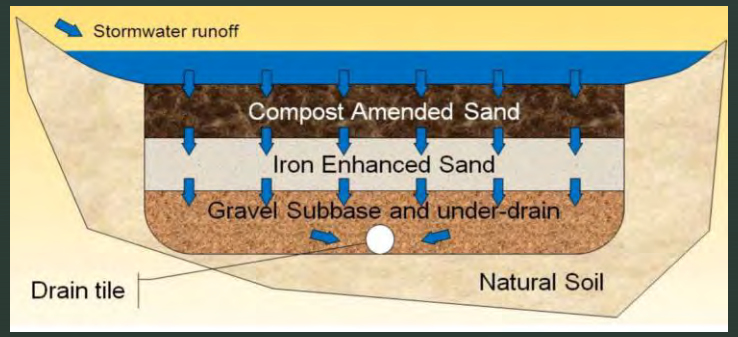


Image: (modified from) Andy Erickson, SAFL

Layered Systems



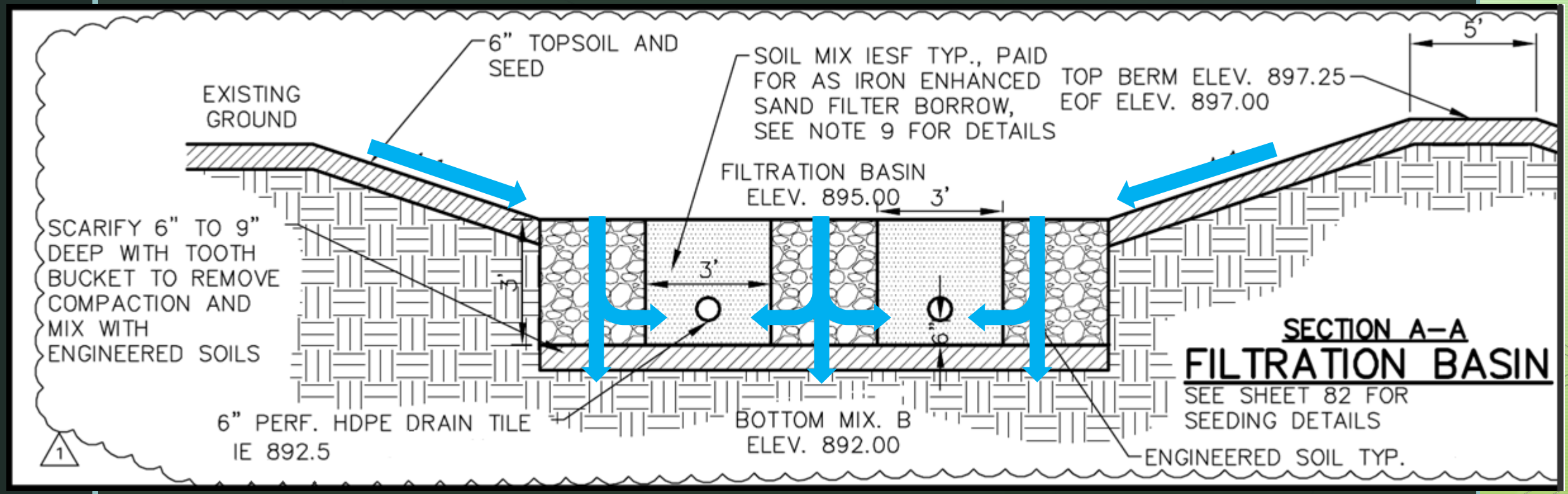
Pros:

- Smaller footprint
- Useful for maintaining vegetation within system
- Limits P leaching through reduced compost content or capture of P
- Efficient use of enhanced media
- Potential reduced maintenance costs (vertical systems)

Cons:

- Complex installation
- Higher installation costs
- Potential plant stress due to reduced soil water holding capacity of some layers

College Trail
Inver Grove Heights

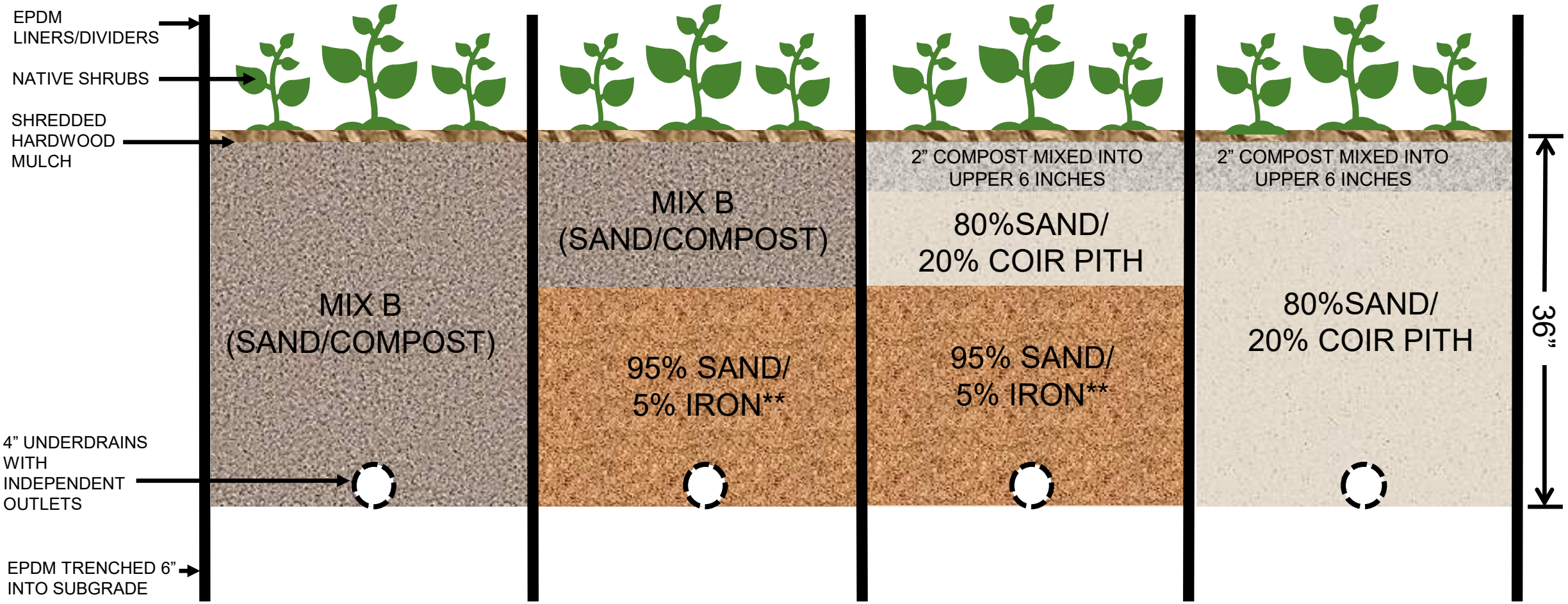


College Trail
Inver Grove Heights
Installation

Minnesota Zoo
Apple Valley

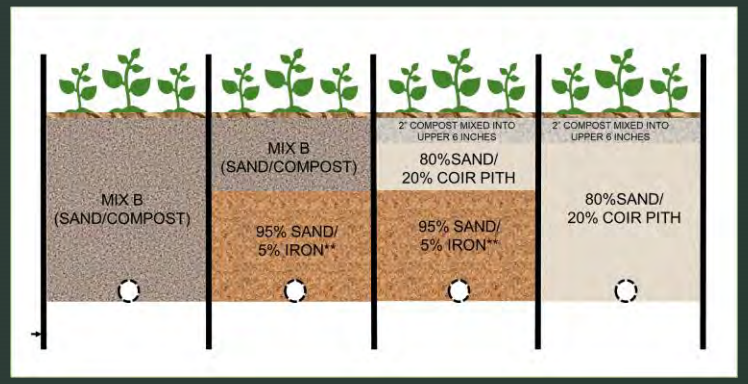
Seidl Lake Park
South Saint Paul

Jensen Lake Retrofits
Lebanon Hills Park, Eagan



*Runoff receives pretreatment through separate forebay
**by weight


VOLVO



- Healthy vegetation throughout each of the layered systems
- Effluent monitoring needed to know level of P leaching
- Uniform mixing of each media is important
- Material cost and availability could be a concern on large projects